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vation on the 'short head' of the Biceps femoris muscle in the mammalian series.

The chief excursion of the Congress was made on Wednesday, September 26th, to Eisleben, where the copper mines already referred to were visited, and demonstrations of copper-smelting were given by representatives of the Mansfield Co. Subsequently the local collection of prehistoric pottery, etc., was inspected.

The concluding session was held on September 27th, when the presidency (for the ensuing year) was assumed by Professor Waldeyer (Berlin). It is a matter of interest to note that the Congress was made the occasion of circulating 'special inquiry' sheets regarding the structure and building of boats in all parts of Germany. General proposals regarding cartography and systematic records for provincial localities were brought forward by Dr. Voss (Berlin).

In addition to the anthropologists already mentioned in the foregoing notes, there were present Freiherr v. Andrian-Werburg (Vienna), Professor Hein (Vienna), Professor Montelius (Stockholm), Professor Koganei (Tokio), and others to the number of about 120.

SCIENTIFIC NOTES AND NEWS.

PROFESSOR SCHIAPARELLI retired on November 1st from the directorship of the Observatory at Milan, where he has been at work for the past forty years. His successor is Professor Celoria, heretofore assistant astronomer at the Observatory.

THE vacancy caused by the death of William Saunders, for the past 38 years superintendent of Experimental Gardens and Grounds, U. S. Department of Agriculture, has been filled by the appointment of B. T. Galloway, who in turn has been succeeded by Albert F. Woods as chief of the Division of Vegetable Physiology and Pathology.

DR. T. A. GEDDES, of the Bureau of Animal Industry, Department of Agriculture, has been detailed as a special inspector and ordered to Great Britain to inspect cattle intended for importation into the United States. Dr. Geddes sailed on November 7th.

PROFESSOR FREDERICK STARR, of the University of Chicago, has received a silver medal

from Queen Wilhelmina, of Holland, as an acknowledgment for the anthropological collection sent by him to the National Museum of Holland.

DR. W. C. RÖNTGEN has written from Munich, under date of October 3d, a letter to the President of Columbia University, of which the following is a translation:

From the Secretary of our University I received yesterday the Barnard Medal awarded to me, together with your esteemed letter of June 13th.

Through the bestowal of this medal by a scientific institution, so illustrious as Columbia University, acting in conjunction with the National Academy of Sciences, my work upon the X-rays has received a recognition which, though in my own estimation greater than it deserved, has nevertheless pleased me very much and will be a spur to further effort.

Permit me, Mr. President, to request you to convey to Columbia University my warmest thanks.

MR. WILLIAM ANDERSON, professor of anatomy to the Royal Academy of Arts, London, died on October 27th at the age of fifty-eight years. He was the author of numerous contributions to anatomy and surgery, and the relation of these sciences to the fine arts. He was for some years director of the Naval Medical College at Tokyo, where he made valuable collections now in the British Museum.

DR. JOSEPH MIK, a distinguished dipterologist, died at Vienna on October 13th at the age of sixty-two years.

SURGEON MAJOR REED and a board of experts will continue the investigation into the propagation of yellow fever by mosquitoes, and an experimental station will be established outside Havana.

THE Secretary of Agriculture has published the following general order: "For the purpose of unifying the work of certain branches of the Department, it is hereby ordered that the Chief of the Division of Vegetable Physiology and Pathology, the Chief of the Division of Agrostology and the Chief of the Division of Pomology confer upon all matters of general policy and plan with the Superintendent of Experimental Gardens and Grounds, who is hereby designated as Director of Plant Industry. In carrying out this order the several branches of the Department named will maintain their pres-

ent integrity and organization." A laboratory for the physical and chemical study of road materials has been established in the Division of Chemistry. "The object of the establishment of this laboratory is to secure the widest possible knowledge of the nature of road materials, their resistance to stress, their hardness, their power of absorbing water, their deportment in freezing temperatures, their cementing properties when reduced to powder, either alone or when mixed with other substances, their chemical composition and their geological origin and distribution."

It is reported that M. Daniel Osiris, a Greek millionaire, residing in Paris, has instituted a prize on the lines laid down by Mr. Nobel, though his offer is for Frenchmen only, except in a Paris Exposition year, when it becomes universal. He has set aside a sum to be awarded every three years in perpetuity to the discoverer, inventor or producer of the most noteworthy idea or object for the benefit of humanity. The prize is to be never less than 100,000 francs, and may be double that sum.

EDGAR J. TOWNSEND, professor of mathematics, and Cyril G. Hopkins, professor of agronomy, have returned to the University of Illinois after a leave of absence. Both have been studying during their absence abroad at the University of Göttingen, from which institution each has received the degree of Ph.D. Professor Townsend studied pure mathematics under Professors Hilbert and Klein and the mathematics of physics under Professor Voigt. Professor Hopkins has been studying under Professor Tollans.

PROFESSOR B. B. ROSS, of the Alabama Agricultural and Mechanical College and Experiment Station, has been granted a year's leave of absence, which he is spending in chemical investigation in Germany.

PROFESSOR F. W. WOLL, chemist of the Wisconsin Experiment Station, is spending a year in special study abroad.

PRESIDENT HENRY S. PRITCHETT, of the Massachusetts Institute of Technology, made an address on November 8th before the Boston Society of Arts on 'America's Contribution to

the Knowledge of the Size and Figure of the Earth.'

MR. L. B. STILLWELL, formerly electrical director of the Niagara Falls Power Company, and now in charge of the electrical installation work of the Manhattan Railway Company, has been appointed electrical director of the New York Rapid Transit Subway Construction Company.

IN memory of the late Dr. R. T. Manson, F.G.S., the naturalist and geologist, a large granite boulder, has, as we learn from *Nature*, been taken from the bed of the River Tees and placed on a pedestal in the Public Park, Darlington. The stone weighs about twelve tons, and it is admitted to have come originally from Shap, in Westmoreland, in the Great Ice Age.

THE well known collection of mammals of E. A. and O. Bangs, comprising more than ten thousand specimens (in most cases skins accompanied by skulls) and over one hundred type specimens, has been presented to the Museum of Comparative Zoology of Harvard University through friends of the Museum.

THERE has been recently received at the National Zoological Park, Washington, D. C., a specimen of Steller's sea-lion (*Eumetopias stelleri*), from the Pribilof Islands.

It is stated that the German Government has purchased Count Zeppelin's airship and that it will be taken to Berlin.

THE Indian Government will give an annual subsidy of £650 for three years to the Pasteur Institute at Kasouli, of which Major Semple is director.

THE daily papers report that Dr. Leopold Kann has arrived at Dundee on the Whaler *Eclipse*, bringing news, not only of Dr. Robert Stein and Mr. Samuel Warmbath, but also of Lieutenant Peary and Captain Sverdrup. Lieutenant Peary is said to be now wintering at Fort Conger and has apparently put off his attempt to reach the far north until next year. Captain Sverdrup, on the *Fram*, is said to be wintering in Jones Sound.

ST. PETERSBURG scholars are planning a scientific expedition to examine the manuscripts at

Moukden, discovered by Russian troops, among them being ancient Greek and Roman documents, supposedly taken by the Mongolians on their retreat from the Occident. They are believed to be of great historical value.

THE Peabody Museum is sending this week an expedition to continue the work of exploration in the ruined and prehistoric city of Copan, in Central America.

THE United States Civil Service Commission invites attention to the fact that in view of the statement of the Department of Agriculture that no appointment is expected to be made at present to the position of assistant biologist, the examination scheduled for November 20, 1900, for the position of assistant biologist in the Department of Agriculture, will not be held at that time and not until further notice.

FROM a private letter the following paragraph of interest to astronomers is taken: "The latest news concerns the building of a fine new meridian circle by Repsold for the observatory at Kiel. It is to be of eight inches aperture with all possible modern improvements; a full equipment of collimators, wires, etc. Of the latter two are to be at 60 meters distance and a third at 4,000 meters. There is to be a floating mirror suspended over the instrument for observations to supplement the usual nadir observations. The building is to be semi-cylindrical with double walls about 12 meters square, and if I understand the matter correctly, the entire building is to be in two parts, so that the slit for observations is formed by separating the parts in the east and west direction. Professor Harzer is responsible for the design, I believe. The purpose for which the instrument is designed is the observation of faint, close circumpolar stars for latitude variation according to the method which has been used at the Paris Observatory, and the Prussian government is to furnish the money."

THE *London Daily Mail* states that the postal departmental commission will shortly report, after some months of deliberation, in favor of the earliest possible adoption of Marconi's system of wireless telegraphy by the postal authorities. The commission is also arranging terms for the acquisition of the Marconi pat-

ents, and negotiating with France and Germany regarding their attitude toward Marconi's inventions.

A FURTHER item of interest in regard to the Marconi system is the statement that when the Ostend-Dover mail packet *Princess Clementine* was nearing Dover, on November 9th, a message was received on board from La Panne. It was retransmitted to the Marconi station at Dover Court, in Essex, more than eighty miles distant.

THE Pennsylvania Experiment Station has for some time been engaged in the construction of a respiration calorimeter on the general plan of the Atwater-Rosa respiration calorimeter, but adapted in size and mechanical arrangement to use in investigations with the larger domestic animals. In the experiments with man many of the operations are performed by the subject himself, but the problem in experiments with animals is much more complicated. Accordingly the adaptation of the apparatus to animals has called for the exercise of much ingenuity in providing devices which will make the apparatus more largely automatic, or allowing all the operations connected with an experiment to be managed from without the respiration chamber. The apparatus is approaching completion. After being thoroughly tested it will be used for studying the fundamental problems connected with the nutrition of live stock. Comparatively little work of this character has as yet been done by the American experiment stations, and it is hoped that with the aid of this new apparatus the Pennsylvania Station will be able to achieve important results in a field where there is every year more pressing demand for exact information. -

THE Association of Agricultural Colleges and Experiment Stations is this week meeting at New Haven under the presidency of Dr. Joseph E. Stubbs, president of the Nevada State University.

At a recent meeting of the Röntgen Society in London, Dr. J. B. Mackintyre stated that medical men were disappointed at the limited value of the X-rays in medical work. In the army hospitals in South Africa, however, the X-rays were found most useful. Seventeen

sets of apparatus had been sent to the field. They were now being adopted and supplied to all the larger military hospitals.

At the tenth annual meeting of the British Astronomical Association, held on October 31st, Mr. W. H. Maw referred to the observations made on the solar eclipse and spoke at length of the automatic appliances for obtaining photographs which Professor David P. Todd of Amherst College has devised and which he used with success this year. Professor Todd hopes to employ his apparatus on a more extended scale in observations of next year's eclipse in Sumatra.

At the last meeting of the Congress of American Physicians and Surgeons a committee was appointed to urge upon Congress the repeal of those provisions of the War Revenue Act of 1898 which lay a tax on legacies to educational, charitable and religious organizations. The committee, which consists of Professors Frederick C. Shattuck, Abraham Jacobi and William H. Welch, has written to the members of the Congress asking them to take an active interest in the subject by addressing members of the Senate and House of Representatives. Others interested in education and science should unite in the efforts for the repeal of this legislation.

THE government of Argentina has published a decree declaring that Villa Concepcion is infected with the plague, and that other Paraguayan ports are suspicious.

In the French Senate M. Piot has introduced a bill aiming to arrest the depopulation of France. It provides for a tax on celibates of both sexes after they reach the age of 30, and upon childless couples who have been married for five years, the tax to be maintained until a child is born to them.

A COMMUNICATION on the influence of the temperature of liquid hydrogen on bacteria was recently presented to the Royal Society by Dr. Allan Macfadyen and Mr. Sydney Rowland. In a previous communication these gentlemen had shown that the temperature of liquid air has no appreciable effect upon the vitality of micro-organisms, even when they are exposed to this temperature for one week (about -190° C.) They now report, we quote from the *Brit-*

ish Medical Journal, that they have been able to execute preliminary experiments as to the effect of a temperature as low as that of liquid hydrogen on bacterial life. As the approximate temperature of the air may be taken as 300° absolute, and liquid air as 80° absolute, hydrogen as 21° absolute, the ratio of these temperatures roughly is respectively as 15 : 4 : 1. In other words the temperature of liquid hydrogen is about one-quarter that of liquid air, just as that of liquid air is about one-quarter of that of the average mean temperature. In subjecting bacteria, therefore, to the temperature of liquid hydrogen, the experimenters place them under conditions which, in severity of temperature, are as far removed from those of liquid air as are those of liquid air from that of the average summer temperature. By the kindness of Professor Dewar the specimens of bacteria were cooled in liquid hydrogen at the Royal Institution, the following organisms being employed: *B. acid lactici*, *B. typhosus*, *B. diphtheriæ*, *proteus vulgaris*, *B. anthracis*, *B. coli communis*, *staphylococcus pyogenes aureus*, *spirillum cholerae*, *B. phosphorescens*, *B. pyocyaneus*, a *sarcina* and a yeast. These organisms in broth culture were sealed in thin glass tubes and introduced directly into liquid hydrogen contained in a vacuum jacketed vessel immersed in liquid air. Under these conditions they were exposed to a temperature of about -250° C. (21° absolute) for ten hours. At the end of the experiment the tubes were opened, and the contents examined microscopically and by culture. The results were entirely negative as regards any alteration in appearance or in vigor of growth of the micro-organisms. It would appear, therefore, that an exposure for ten hours to a temperature of about -250° C. has no appreciable effect on the vitality of micro-organisms. Dr. Macfadyen and Mr. Rowland hope in a future communication to extend their observation upon the influence of the temperature of liquid hydrogen on vital phenomena, and to discuss their bearing upon problems of vitality.

THE new session of the Royal Geographical Society, London, as we learn from the *London Times*, began on November 12th, when it was expected that the president, Sir Clements Mark-

ham, would give a brief introductory address, to be followed by a paper by Dr. A. Donaldson Smith on his recent remarkable journey through Somaliland to Lake Rudolf, and across from Lake Rudolf to the Nile and home by Khartoum and Cairo. The second paper, on November 26th, will be by Mr. J. E. S. Moore, on his recent expedition for the scientific exploration of Lake Tanganyika and the interesting region to the north. At the meeting of December 10th Major Gibbons will give an account of his exploration of the Barotse country and his journey thence through Africa to the Mediterranean. After Christmas among the papers expected are one by Colonel G. E. Church, on the geography of South America, with special reference to its commercial development, and another on 'Further Studies in Wave Form,' by Mr. Vaughan Cornish. It is hoped that the Duke of the Abruzzi may be able to arrange to go to England some time next year before the end of the session and give the Society an account of his recent remarkable expedition towards the North Pole.

At the opening of the new scientific laboratories at King's College, London, which took place on October 30th, Lord Lister made an address in which, according to the *London Times*, he said that it might seem strange that so large a gathering of distinguished men should come to witness the opening of certain laboratories. Yet the occasion was not unworthy of celebration, for it was an event of significance in regard to the provisions for higher education in the metropolis. It was recognized that mere lectures were not sufficient, that practical instruction was imperatively necessary. In some branches King's College was long ago well equipped to this end; the Wheatstone Museum contained a fine collection of physical apparatus, and in chemistry nothing could be better than the arrangements for practical teaching. The same might be said of other departments, but not of all. The dissecting room was by no means adequate, and the accommodation for the practical teaching of physiology was simply miserable, while there were defects in less degrees in other departments. Of these the Council had long been conscious, and, having determined to remedy them, had provided the

new laboratories, which, as visitors would admit, were highly satisfactory. The laboratory for practical physiology in all its branches was now second to none in the country. It had really been in use for some time, and had attracted many students, not only from King's College, but from elsewhere. Its removal to the second floor gave room for the expansion of the anatomical department, and at the same time there had been provided a fine anatomical museum, which, however, was not yet equipped. The bacteriological laboratory had received an important addition. This laboratory, which owed its inception to Professor Crookshank, though it attracted advanced students not only from this country but from the world, had hitherto consisted of a single apartment which was not suitable for research work. For this latter purpose a new room had now been added, and a fine class-room had also been constructed, common to the professors of bacteriology and physiology. No doubt his audience had watched with interest, and rejoiced at the success of the endeavors made to check the outbreak of plague in Glasgow, and they must also have felt a sense of relief when the suspected case in the metropolis was found not to be plague; in both cases the means employed were entirely due to researches of the kind carried on in bacteriological laboratories. But it was not only the medical faculty of King's College that had benefited by the alterations. Geology now had accommodation proportionate to the importance of the subject, and in the architectural department there was abundant room for men engaged in drawing and designing. In short, King's College was abreast of the age as regards opportunities for practical teaching in all departments. It was a happy coincidence that this great addition to its resources had been made at the time when it was entering on a new career as one of the colleges of the new University of London. He himself would have liked to see the old examining university retained and a separate teaching university established. But other views prevailed, and a compromise had been effected under which examining and teaching existed side by side in the same institution. He wished the compromise all the success it was capable of, and ven-

tured to express the hope that, now the matter was decided, all would work together for the common good.

UNIVERSITY AND EDUCATIONAL NEWS.

IN addition to her recent gifts of \$100,000 and \$10,000 which we have recently announced, Mrs. Jane K. Sather, of Oakland, has presented to the University of California real estate worth \$150,000.

MR. WILLIAM WALDORF ASTOR has contributed \$50,000 to the benefaction fund of Cambridge University, England.

COLUMBIA UNIVERSITY has received a further anonymous gift of \$10,000 for the purchase of books.

AT the annual meeting of the Council of New York University it was reported that the gifts to the institution during the year had amounted to \$348,000.

AT a recent meeting of the Board of Trustees of Columbia University the committee on buildings and grounds was authorized to select a site and prepare plans for a college hall.

THE main building of the Cornell University Veterinary College was partly burned on Tuesday. The apparatus destroyed was worth \$10,000; the total loss is \$30,000.

THE Yale Forestry School has opened with an enrollment of seven regular students and seventeen from other departments of the University. The residence of the late Professor O. C. Marsh is used as a school building. In addition to lecture rooms, a library, laboratory and a herbarium room have been furnished with such equipment as is necessary for the present requirements of the school. A considerable amount of museum material has already been acquired by the school and is being classified and arranged as rapidly as possible. The grounds about the building, 10 acres, are already covered with a great variety of trees and shrubs, both native and foreign, and it is the intention to plant a considerable number of varieties which are not represented. A forest nursery will be established on the grounds, but the regular forest planting will be done on waste land on the out-

skirts of New Haven. The New Haven Water Company has offered to the school the use of several hundred acres of woodland for the practical field work of the students, and several other owners have expressed their desire to devote their wood-lots to this purpose. The degree of master of forestry will be given to such graduates of the school as have previously received the bachelor's degree from collegiate institutions of high standing.

A BOTANICAL school is being erected at a cost of \$20,000 in Shealey Park, Pittsburg. It is intended especially for children in the schools, as it is believed that they can carry on the study of botany to greater advantage in a special laboratory than in the school-room.

TRINITY COLLEGE for the higher education of women, near the Catholic University at Washington, will be dedicated towards the end of the present month. Its educational work has already begun.

MR. T. NELSON DALE, geologist of the U. S. Geological Survey, has resigned his instructorship in geology and botany at Williams College and his curatorship of the College Museum.

THE following appointments have been made at Columbia University: W. W. Comstock, assistant in physics; Hardy Chambiss and W. E. Dryfus, assistants in chemistry; Charles E. Banker, assistant in normal histology, and Carlton P. Flint, assistant in demonstrative anatomy.

MR. I. H. DERBY, B.A. (Harvard, 1899), and F. C. Koch, M.A. (Illinois, 1900), have been appointed instructors in chemistry at the University of Illinois. At the same university, Mr. E. W. Ponzer, B.A. (Illinois, 1900), has been appointed instructor in mathematics.

DR. ALFRED L. T. SCHAPER, formerly assistant professor of histology at the Harvard Medical School, has been appointed professor extraordinary of anatomy, and director of the division for embryology and bio-mechanics at the University of Breslau.

PROFESSOR GEORG MEISSNER, director of the Physiological Institute at Göttingen, will retire at the end of the present college term on account of ill health.